

AVANT[®]

Operator's Manual for Attachment



Grapple Bucket

Product number

900 mm

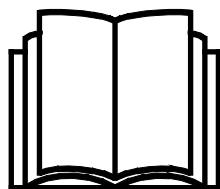
1050 mm

1300 mm

A36304

A36316

A36323



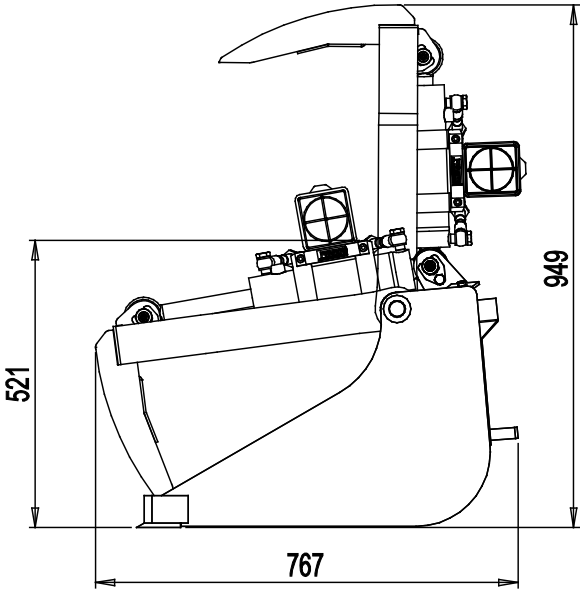
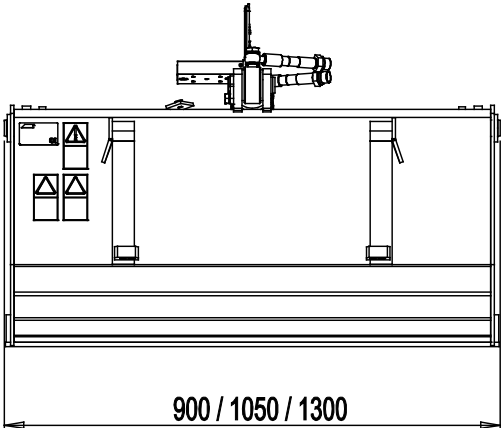
Please read this manual carefully before using the equipment, and follow all instructions.

Keep this manual for later reference.

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I. Foreword

Avant Tecno Oy would like to thank you for your purchase of this attachment for your Avant loader. It has been designed and manufactured based on years of experience on product development and manufacturing. By familiarizing yourself with this manual and following the instructions, you ascertain your safety and ensure the reliable operation and long service life of the equipment. Read the instructions carefully before starting to use the equipment or performing maintenance.

The purpose of this manual is to help you to:

- operate the equipment in a safe and efficient manner
- observe and prevent any hazardous situations
- keep the equipment intact and ensure a long service life

With these instructions, even an inexperienced user can use the attachment and loader safely. The manual includes important instructions for experienced AVANT operators as well. Ensure that all persons using the loader have received proper guidance and familiarised themselves with the manual of the loader, each attachment that are used, and all safety instructions before using the equipment. Using the equipment for other purposes or use in any other way than described in this manual is prohibited. Keep this manual at hand throughout the service life of the equipment. If you sell or transfer the equipment, be sure to hand over this manual to the new owner. If the manual is lost or damaged, you can request a new one from your Avant dealer or from the manufacturer.

In addition to the safety instructions included in this manual, you must observe all occupational safety regulations, local laws, and other regulations concerning the use of the equipment. Particularly the regulations concerning the use of the equipment on public road areas must be observed. Contact your Avant dealer for more information about local requirements before you operate the loader on road areas.

Contact your local AVANT dealer for any questions, service, spare parts or about any problems that may occur with the operation of your machine.

This manual contains the original instructions in English. Due to continuous product development some of the details shown in this manual may differ from your equipment. Pictures may also depict optional equipment or features that are not currently available. We reserve the right to change the contents of the manual without notification. Copyright © 2020 Avant Tecno Oy. All rights reserved.

Warning symbols used in this manual

The following warning symbols are used throughout this manual. They indicate factors that must be taken into account to reduce the risk of personal injury or damage to property:



WARNING SAFETY ALERT SYMBOL

This symbol means: **“Warning, be alert! Your safety is involved!”**

Carefully read the message that follows, it warns of an immediate hazard that could cause serious personal injury.

The safety alert symbol by itself and with related safety statement indicates important safety messages throughout this Manual. It is used to draw attention to instructions involving your personal safety or the safety of others. When you see this symbol, be alert, your safety is involved, carefully read the message that follows, and inform other operators.

DANGER

This signal word indicates a hazardous situation which, if not avoided, will cause death or serious injury.

WARNING

This signal word indicates a potentially hazardous situation which, if not avoided, could cause serious injury or death.

CAUTION

This signal word is used when minor injury could result if the instructions are not followed properly.

NOTICE

This signal word indicates information about the correct operation and maintenance of the equipment.

Failure to observe the instructions accompanying the symbol can lead to equipment breakdown or other property damage.

2. Designed purpose of use

The AVANT Grapple buckets are attachments that are suitable for use with AVANT compact loaders that are shown in Table 1. The Grapple bucket combines a normal bucket and a hydraulic grapple which makes the attachment suitable for many different tasks. The strong grapple makes it easy to load and move loose materials, which would fall from other attachments such as the silage forks. The grapple bucket is ideal, for example, for transporting and loading of branches, wood chips, compost, straw, manure, construction waste etc. It can also be used as a normal bucket with the grapple in the upright position.

Various width options are available to best suite each task and loader model. When choosing a bucket, the intended use of the bucket, and the model of the loader should be considered, as shown in Table 1. If the loader is fitted with other than standard tyres, or differs from original specifications, consult your Avant dealer to choose the best bucket.

The Grapple bucket is not designed for any other use than what is specified in this manual and must not be used for any other purposes than what is intended for.

The attachment has been designed to require as little maintenance as possible. The operator can perform regular maintenance tasks. All repair work can't be performed by the operator, and demanding repair and maintenance operations are to be left for professional technicians. All maintenance work must be done using proper safety equipment. Spare parts must be identical with original specifications, which can be ensured by using only original spare parts. A separate spare parts catalogue may be available, consult your Avant dealer.

Familiarise yourself with the manual's instructions regarding service and maintenance. Please contact your AVANT dealer if you have additional questions about the operation or maintenance of the equipment, or if you require spare parts or maintenance services.

Table 1 - Grapple Bucket - Compatibility with Avant loaders

Avant		220 _{series 2}	313S	420	525LPG	630	735		
		225	320S	423	R28	R35	745	850	e5
		225LPG		520	528	635	750	860i	e6
				523	530	640	755i		
				R20			760i		
A36304	900 mm	•	•	•	-	-	-	-	-
A36316	1050 mm	-	(•)	•	•	(•)	-	-	•
A36323	1300 mm	-	-	(•)	•	•	•	(•)	•

The compatibility recommendations are based on the width of the loader, lifting capacity, and adequate breakout force. Normally the width of the attachment should match roughly the width of the loader. When using too wide attachment the actual breakout force (bucket tilting capacity) decreases and the overall performance will decrease. To estimate the lifting capacity of the loader the load diagram shown in the operator's manual of the loader can be used. When using with models marked with (•), full performance may not be achieved. Additional counterweights may also be required.

For compatibility information with a model not shown in table above, contact your Avant dealer.

3. Safety instructions for using the attachment

Please bear in mind that safety is the result of several factors. The loader-attachment combination is highly powerful and improper or careless use or maintenance may cause serious personal injury or property damage. Due to this, all operators must carefully familiarise themselves about correct use and the operator's manuals of both the loader and the attachment before starting operation. Do not use the attachment if you have not completely familiarised yourself with its operation and the related hazards.



DANGER

Misuse, careless use, or using an attachment that is in poor condition may cause risk of serious injuries. Familiarise yourself with the controls of the loader, correct coupling procedure, and the correct way to operate the attachment at a safe area. Study especially how to stop the equipment in a safe manner. Read all safety precautions carefully.

Read all safety instructions carefully before handling the attachment



WARNING

- When attaching an attachment to the loader, **ensure that the locking pins of the loader's quick attach plate are in the lower position and that they have locked the attachment to the loader.** Never lift or move an unlocked attachment.
- This attachment is designed to be used by one operator at a time. Do not let others near the danger area of the equipment when it is in use.
- Always transport the attachment as low as possible to keep the centre of gravity low, and keep the telescopic boom retracted during driving.
- **Risk of getting injured by sharp tines of grapple - Lower the grapple completely before going near the sharp tines and the grapple, which may lower even if the loader is not running.** Lower the attachment on the ground and lower its grapple completely before leaving the driver's seat to avoid unintentional movements of the loader and the grapple. Follow safe stopping procedure.
- **Sudden movements can cause the loader to tip over - Operate the controls of the loader in a slow and calm manner.** Be careful when lifting load to high level or lifting load from high. Avoid sudden changes in speed or direction to maintain balance of the loader especially when handling heavy loads. Drive slowly and carefully especially on inclined terrain or slippery surfaces.
- **Risk of tipping over - Keep loads close to ground while driving.** Carrying heavy loads can shift the centre of gravity of the loader and lead to tipping over of the loader. For the best stability always transport loads as low and close to the loader as possible, with the telescopic boom completely retracted, to keep the centre of gravity low.
- **Risk of crushing - Never go or allow anyone else to go under the loader boom or attachment.** The stability of the loader may change when leaving the driver's seat, leading to tipping over of the machine. Always remember that the boom may lower unexpectedly due to loss of stability, mechanical fault, or if another person operates the controls of the loader, leading to crushing hazard. The loader is not intended to be left to keep a load elevated for longer periods. Lower the attachment firmly on the ground before leaving the driver's seat and never allow anyone to be under the boom or attachment.
- Keep the loader articulation in straight position when handling heavy loads. When turning the articulation, the loader may tilt forward.



- Observe maximum load indicated in the operator's manual of the loader. Be especially careful when the load sensor indicator is activated, if your loader is fitted with a load sensor system.
- Make sure that the surface can bear the total load. Also follow the correct tyre pressure settings.
- Pay attention to the surroundings and any other persons and machines moving in the vicinity. Other persons must keep safety distance of 5 meters. Pay attention to the contours of the terrain and other hazards, such as branches and trees that can reach to the driver's area, loose rocks, and slippery surfaces.
- Make sure that overhead clearance is sufficient. Hitting an overhead obstacle may cause the loader to tip over. Keep a safe distance from electric cables, lamps, or other electric systems; hitting live parts may cause electric shock.
- Ensure that ventilation is sufficient when operating indoors. Do not operate the loader in closed spaces regardless of the engine or fuel type. Exhaust gases may concentrate to hazardous levels.
- Never use the attachment to lift or to transport persons or as any kind of work platform even temporarily.
- Make sure to use only an attachment that is in good condition. Check the attachment thoroughly in regular intervals. Do not modify the attachment in a manner that would affect its safety. It is prohibited to drill holes on the attachment, and welding or other means of fixing hooks or other objects on the attachment is strictly prohibited.
- Shut down the loader and place the attachment to a safe position as shown in Safe stopping procedure before any cleaning, maintenance, or adjustments.
- Use the attachment only for its intended purpose. Other use may create unnecessary safety risks, and the equipment may get damaged.
- Make sure that the loader is equipped with necessary safety components, and that they are in working condition. Seat belt must be used. If there are specific hazards related to the operating area, use appropriate safety equipment.
- Also read the safety instructions and correct use of the loader from the operator's manual of the loader.



Risk of crushing - Going under the loader boom or an attachment can cause serious injury or death. Never go under the loader boom and prevent others from getting near lifted boom or attachment. Going under a raised attachment or loader boom is dangerous, as the boom may lower due to loss of stability, mechanical fault or when other person operates the controls of the loader. Lower the attachment firmly on the ground to a safe position before leaving the driver's seat.

Keep in mind that the loader boom can be lowered or tilted even if the engine has been shut down (crushing hazard). The loader is not intended to be left to keep a load elevated for longer periods. Always lower the attachment to a safe position before leaving the driver's seat.



Risk of crushing - Never allow anyone to get under a lifted attachment or loader boom. Keep in mind that the loader boom can be lowered or tilted even if the engine has been shut down (crushing hazard). The loader is not intended to be left to keep a load elevated for longer periods. Always lower the attachment to a safe position before leaving the driver's seat.



3.1 Personal protective equipment

Remember to wear proper personal protective equipment:



- The noise level at the driver's seat may exceed 85 dB(A) depending on loader model and operating cycle. Extended exposure to loud noise can cause hearing impairment. Wear hearing protection while working with the loader.



- Wear protective gloves.



- Wear safety boots whenever working with the loader.



- Wear safety glasses e.g. when handling hydraulic components.



- When working at construction sites, a safety helmet is recommended and may be mandatory in addition to the falling objects protective structure (FOPS) on the loader. Find out about other necessary safety equipment at your specific work site.

3.2 Safe shutdown procedure

Safe stopping of the attachment, before going near the attachment:



Always stop the attachment following safe stopping procedure before leaving the driver's seat. Safe stopping procedure prevents all unintentional movements of the attachment. Note that the loader boom can move down even if the engine of the loader is turned off. Safe stopping procedure:

- Lower the boom and the attachment on the ground.
- Shut down the loader engine and lock the parking brake.
- Release residual pressure from the hydraulic system; move all hydraulic control levers to their extreme positions a couple of times.
- Prevent starting of the machine, remove ignition key.
- Make sure the grapple is completely lowered before leaving the attachment unattended.

4. Technical specifications

Table 2 - Grapple Bucket - Specifications

Product number	A36304	A36316	A36323
Total width:	900 mm	1050 mm	1300 mm
Maximum allowed load:	400 kg	500 kg	600 kg
Weight:	130 kg	146 kg	168 kg
Grapple operation:	Hydraulic cylinder		
Maximum input of hydraulic energy:	max 22,5 MPa (225 bar)		
Suitable Avant loaders:	See Table 1		

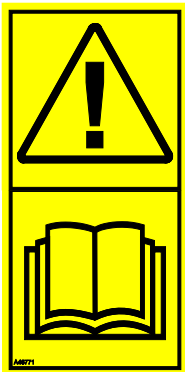
4.1 Safety labels and main components of the attachment

Listed below are the labels and markings on the attachment. They must be visible and readable on the equipment. Replace any unclear or missing label. New labels are available via your retailer or contact information provided on the cover.



WARNING

Make sure all warning decals are readable. The warning labels contain important safety information and they help to identify and remember the hazards related to the equipment. Replace damaged or missing warning labels with new ones.



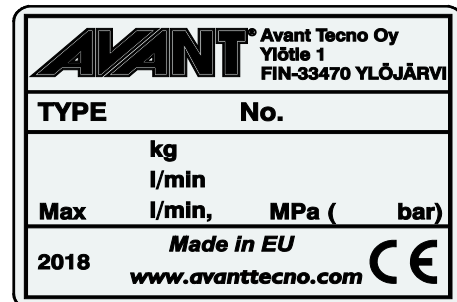
A46771



A46772



A46803



Attachment identification plate
A417984 / A417990 / A418023

To apply a new label: Clean the surface thoroughly to remove all grease. Allow it to dry completely. Peel off the protective film of the label and press firmly to apply. Take care not to touch the glue of the label.

Table 3 - Decal locations and warning messages

	Decal	Warning message
1	A46771	Misuse hazard - Read instructions before use.
2	A46772	Crushing hazard - Do not go under a raised attachment; stay away from raised equipment.
3	A46803	Pinching and cutting hazard, keep clear of moving parts, do not leave the equipment running. Operate the attachment only from the driver's seat.
4	A417984 / A417990 / A418023	Attachment identification plate

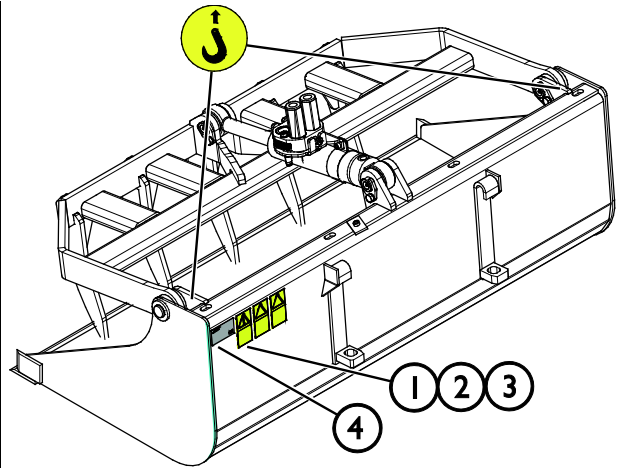
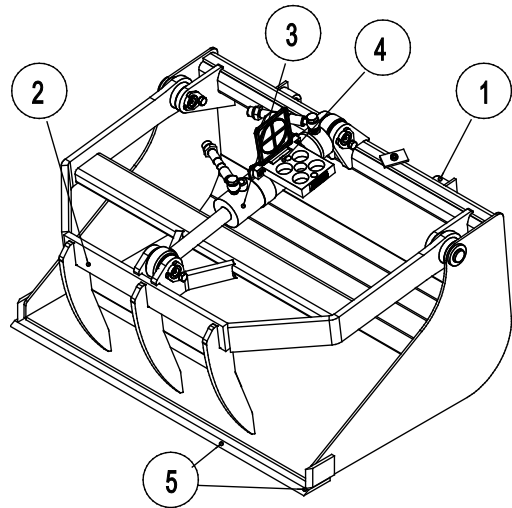


Table 4 - Grapple Bucket - Main components

1	Frame with Avant quick coupling brackets
2	Grapple
3	Grapple cylinder
4	Faster multi connector holder
5	Cutting edge & side cutting edges



5. Attaching the attachment

Attaching the attachment to the loader is quick and easy, but it must be done carefully. The attachment is mounted to the loader boom by using the quick attach plate on the loader boom and the counterpart on the attachment.

If the attachment is not locked to the loader, it may detach from the loader and cause a hazardous situation. The loader must not be driven and the boom must never be lifted when the attachment has not been locked. To prevent hazardous situations, always follow the coupling procedure shown below. Also remember the safety instructions shown in this manual. The attachment is mounted to the loader as follows:



WARNING

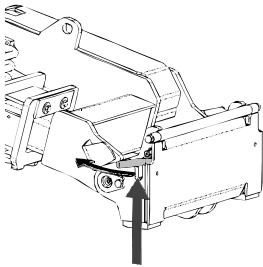
Crushing risk - Make sure that an unlocked attachment will not move or fall over.

Do not stay in the area between the attachment and the loader. Mount the attachment only on level surface.

Never move or lift an attachment that has not been locked.

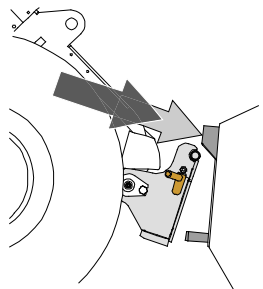
Avant quick coupling system:

Step 1:



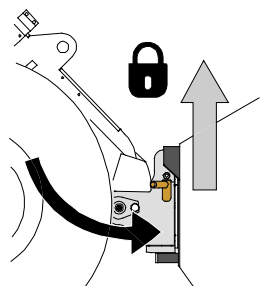
- Lift the quick attach plate locking pins up and turn them backwards into the slot so that they are locked in the upper position.
- If your loader is equipped with a hydraulic attachment locking system, see additional instructions about the use of the locking system from the relevant manuals.
- Make sure that the hydraulic hoses are positioned so that they will not get in between the coupling plate of the loader and the attachment, and that they will not get squeezed or chafed against sharp edges.

Step 2:



- Turn the quick attach plate hydraulically to an obliquely forward position.
- Drive the loader onto the attachment. If your loader is equipped with a telescopic boom, you can utilise this.
- Align the upper pins of the loader's quick coupling plate so that they are under the corresponding brackets of the attachment.

Step 3:



- Lift the boom slightly – pull the boom control lever backward to raise the attachment off the ground.
- Turn the boom control lever left to turn the bottom section of the quick attach plate onto the attachment.
- Lock the locking pins manually or lock the hydraulic locking.
- **Always check the locking of both locking pins.**



WARNING

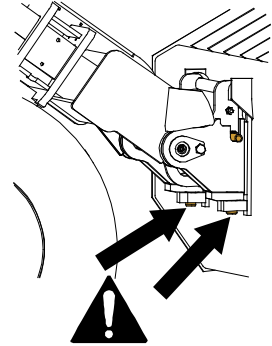
Risk of crushing - Avoid tipping over the attachment. Excessive tilting or lifting of an unlocked attachment increases the risk of tipping the attachment over. Do not use the automatic locking of the locking pins when the attachment is lifted more than one meter from the ground. If the locking pins do not return to the normal position when tilting, do not tilt or raise the attachment any more. Lower the attachment on the ground and secure the locking manually.



WARNING

Risk of falling objects - Prevent dropping of attachment.

An attachment that has not been completely locked to the loader may fall on the boom or towards the operator, or fall under the loader during driving, causing loss of control of the loader. Never move or lift an attachment that has not been locked. Before moving or lifting the attachment, make sure that the locking pins are in the lower position and come through the fasteners on the attachment on both sides.



WARNING

Make sure the loader is compatible with the attachment. Stability of the loader, possible overload of the attachment, and compatibility of loader control systems must be ensured in addition to mechanical compatibility of the attachment. If you use the attachment with a loader that is not fit to be used with the attachment model you have, risks include tipping over, damage to attachment due to overload, and risks related to uncontrolled motion of attachment and its parts. If your loader is not listed in Table 1 on page 6, ask your Avant dealer before using this attachment.

5.1 Connecting and disconnecting hydraulic hoses

On Avant loaders the hydraulic hoses are connected using the multi connector system. If you have an Avant 300-700 series loader with the conventional quick couplers and wish to change to the multi connector system, contact your Avant dealer or service point for instructions or installation services.



WARNING

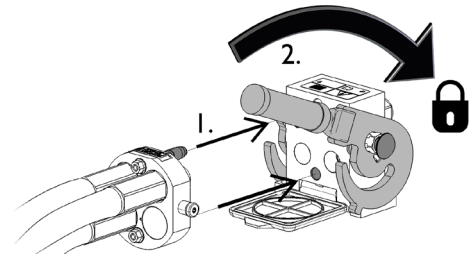
Risk of movement of the attachment and ejection of hydraulic oil - Never connect or disconnect quick couplings or other hydraulic components while the control lever of the auxiliary hydraulics control lever is locked on or if the system is pressurized. Connecting or disconnecting the hydraulic couplings while the system is pressurized may lead to unintended movements of the attachment, or ejection of high-pressure fluid, which can cause serious injuries or burns. Follow safe stopping procedure before disconnecting hydraulics.

NOTICE

Keep all fittings as clean as possible; use the protective caps on both the attachment and the loader. Dirt, ice, etc. may make using the fittings significantly more difficult. Never leave the hoses hanging on the ground; place the couplings onto the holder on the attachment.

Connecting the multiconnector system:

1. Align the pins of the attachment connector with corresponding holes of the loader connector. The multiconnector will not connect if the attachment connector is upside down.
2. Connect and lock the multiconnector by turning the lever towards the loader.

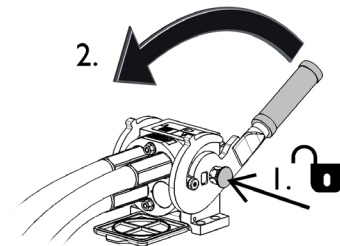


The lever should move easily all the way to its locking position. If the lever does not slide smoothly, check the alignment and position of the connector and clean the connectors. Also shut down the loader and release the residual hydraulic pressure.

To disconnect the multiconnector system:

Before disconnecting put the attachment down on a solid and even surface.

1. Switch off the auxiliary hydraulics of the loader.
2. While pushing unlock button, turn the lever to disconnect the connector.
3. After ending operation put the multiconnector on its holder on the attachment.


Disconnecting hydraulic hoses:

Before disconnecting the fittings, lower the attachment to safe position on solid and level surface. Turn the control lever of the auxiliary hydraulics to its neutral position.

NOTICE

When uncoupling the attachment, always disconnect the hydraulic couplings before unlocking the quick coupling plate, to prevent hose damage and any oil spills. Reinstall the protective caps on the fittings to prevent impurities from entering the hydraulic system.

Releasing residual hydraulic pressure:

In case residual pressure is left in the hydraulic system of the attachment, it is often possible to disconnect the hydraulic couplings, but it may be difficult to connect them the next time. If the fittings will not connect, the residual pressure must be released by turning the auxiliary hydraulics control lever of the loader, when the engine is turned off. To make sure that there will not be residual pressure in the hydraulic system of the attachment, shut down the loader engine and move the auxiliary hydraulics control lever of the loader back and forth before disconnecting the couplings.

6. Instructions for use

Check the attachment and the operating environment once more before starting to work, and that all obstacles have been removed from the operating area. Quick inspection of the equipment and the operating area before use are parts of ensuring safety and the best performance of the equipment.



Risk of tipping over - Avoid overload. Loader can tip over when handling too heavy loads, or because of dynamic movements caused by driving with and handling of a heavy load. Do not extend the telescopic boom when the load approaches the lifting capacity of the loader, or when the loader boom is in horizontal position. When you notice that the rear wheels of the loader are about to lift from the ground, or if the load indicator of the loader (if fitted) signals:

- Lower the load calmly and retract the telescopic boom
- Avoid sudden changes in speed or direction whenever load is lifted
- Use additional counterweights as needed



Risk of falling from height and crushing under bucket or loader - Never use a bucket as a lifting platform or to carry people. Never use the loader or its attachments to lift persons or as any kind of work platform even temporarily. Never climb on the attachment.

Always lower the bucket on the ground before leaving the driver's seat. The loader is not intended to hold loads lifted for longer periods of time.



Risk of crushing - The sharp tines of the attachment and its grapple can cause serious injuries. Make sure that there are no other persons at the operating area and keep a safe distance to persons or farm animals. Lower the grapple before driving with the loader. Stop the loader following the safe stopping procedure before going near the attachment.



6.1 Checks before use

Work can be started when the Grapple bucket has been mounted and the hydraulic fittings connected according to the instructions. Check the attachment once more before starting work.

- Check that hydraulic hoses will not get chafed, and that the grapple joints are lubricated.
- Operate the equipment at well lit areas and make sure that ventilation is sufficient.
- Remember correct working methods and avoid unnecessary descending from the loader.
- Ensure that bystanders are at a safe distance when operating the equipment. Do not let anyone to enter danger area of the boom or to stay directly in front of the loader. Also make sure that it is safe to reverse with the loader. Never assume that bystanders will remain where you last saw them; especially children are often attracted to the moving equipment.
- Check the general condition of the attachment and the loader, and check for possible hydraulic oil leaks. Do the daily checks of the loader, see the operator's manual of the loader. The attachment must not be used, if there is a fault in the hydraulic system of the loader or the attachment. Refer to Chapter 7 for maintenance instructions.
- Operate the attachment and the controls of the loader only when seated on the driver's seat. Ensure that the loader and the attachment are used in a safe manner and as intended. Do not allow children to operate the equipment.
- Never operate the loader or attachments while under the influence of alcohol, drugs, medication that may impair judgement or cause drowsiness, or if not otherwise medically fit to operate the equipment.
- Remember correct working methods and avoid leaving the driver's seat unnecessarily.

6.1.1 Operator qualification

Anyone who intends to use the attachment must:

- Know the intended use of the attachment.
- Know how to use the loader safely in different operating conditions.
- Read and always follow the instructions concerning the use of the attachment in this operator's manual.
- Have this manual and the operator's manual of the loader available.
- Ensure that the loader and the attachment are used in a safe manner and as intended.
- Never allow children to operate the equipment.
- Never operate the loader or attachments while under the influence of alcohol, drugs, medication that may impair judgement or cause drowsiness, or if not otherwise medically fit to operate the equipment.
- Complete any possible mandatory training required by the employer before use.

Please bear in mind that safety is the result of several factors. The loader-attachment combination is highly powerful and improper or careless use or maintenance may cause serious personal injury or property damage. Due to this, all operators must carefully familiarise themselves about correct use and the operator's manuals of both the loader and the attachment before starting operation. Do not use the attachment if you have not completely familiarised yourself with its operation and the related hazards.



Misuse, careless use, or using an attachment that is in poor condition may cause risk of serious injuries. Familiarise yourself with the controls of the loader, correct coupling procedure, and the correct way to operate the attachment at a safe area. Study especially how to stop the equipment in a safe manner. Read all safety precautions carefully.

6.2 Operating the Grapple bucket



Risk of serious personal injuries - Ensure that there are no other persons near the operating area. Do not allow others closer than 5 metres from the grab, to the boom danger area, or directly in front or back of the loader. Move carefully and calmly near persons or farm animals. Also make sure that it is safe to reverse with the loader.

NOTICE

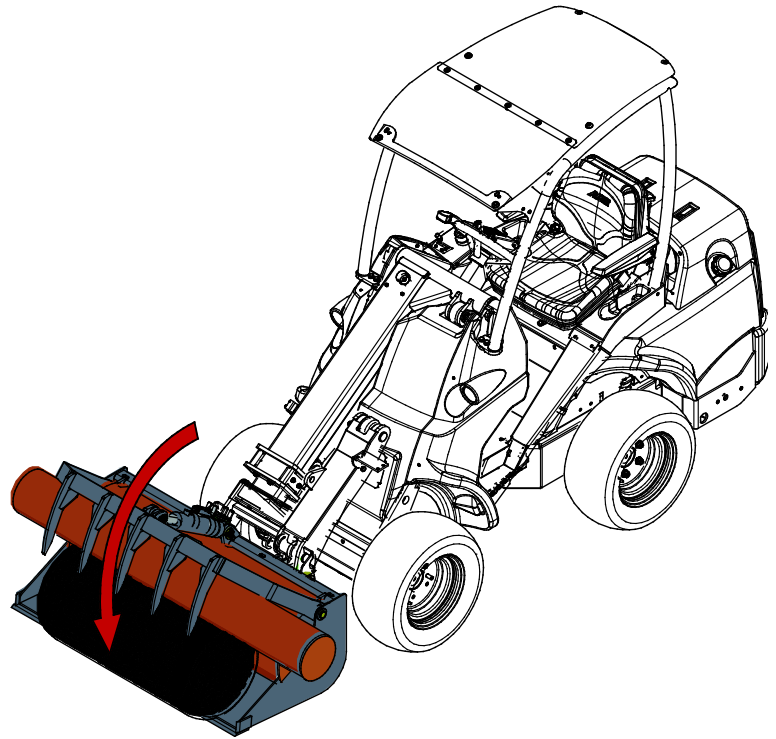
Before using the Grapple bucket for the first time, check that the hydraulic hoses are positioned so, that you can move the loader boom and the grapple to all positions.

Controlling the bucket:

	<p>Move the auxiliary hydraulics control lever towards its locking position (or use the electric buttons of the optional electric joystick) to lower the grapple.</p> <p>The lever should not be left to the locking position.</p>	
	<p>Move the lever away from the locking position to raise the grapple.</p>	

Fill the bucket like normal bucket by pushing it into the material or objects to be filled. Secure the objects by lowering the hydraulic grapple tight on the load as shown in the adjacent figure. The strong grapple keeps the material stationary in the bucket during transport.

Keep the material being transported as close to the loader and as low as possible. When transporting objects with the Grapple bucket, ensure, that the load is secured on the bucket.

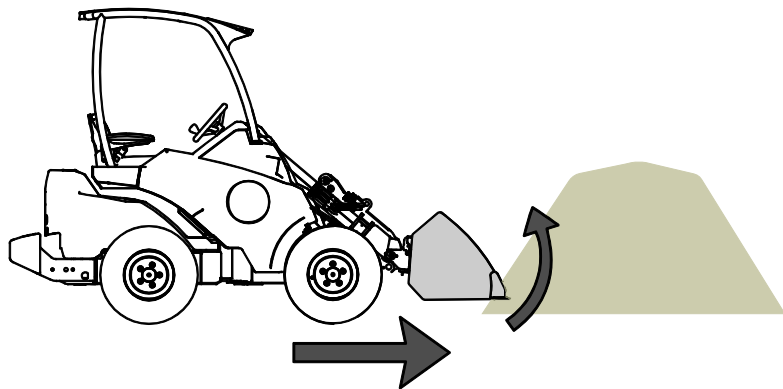


6.3 Using a bucket

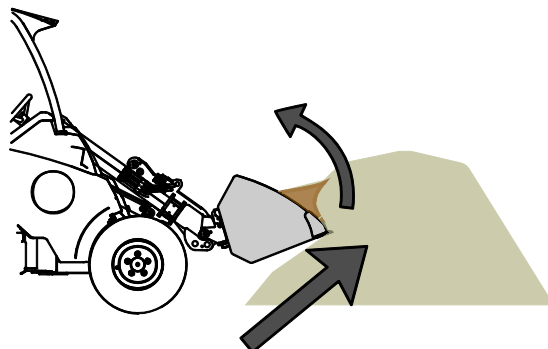
Correct working method is important when lifting material from a pile, as lifting material from a pile requires the most power from the loader. Use high engine rpm and read the instructions how to operate the loader correctly from the operator's manual of the loader.

Filling a bucket by pushing towards a pile of heavy material and then trying to lift or tilt the bucket is not possible with any loader type. The most effective way to fill a bucket is to push only the tip of the bucket into a pile, and then material is cut into the bucket by simultaneous driving, lifting and tilting of the bucket, as illustrated in the following figures. The same basic technique is also applicable when digging material from ground.

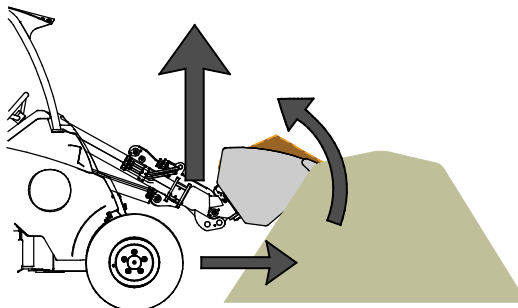
- 1
 - Drive slowly, using moderate to high engine rpm.
 - Once the tip of the bucket is in the pile, begin to tilt the bucket.



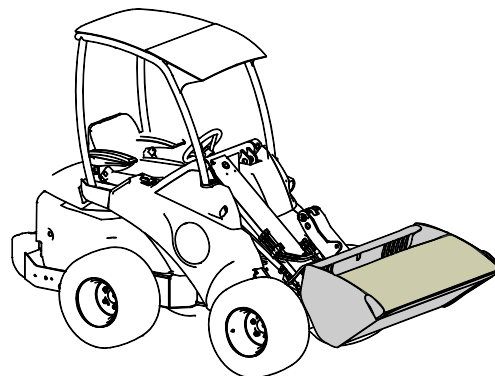
- 2
 - Scoop the bucket full by simultaneous driving forward, tilting, and lifting the bucket.



- 3
- Once the bucket is almost full, lift the bucket with loader boom.
 - Keep driving slowly forward.



Keep the loader stable. Always transport the bucket as low and close to the ground as possible. Lift only at unloading location. Keep the telescopic boom retracted during drive.



Risk of sudden stop - Drive slow when bucket is placed against the ground. Avoid hazards related to sudden stopping of the loader. Hitting an obstacle will stop the loader suddenly, for example in snow clearing work. Check the operating area before operation and use the seat belt.

If the loader is not equipped with the boom self levelling:



Prevent material from falling on you - Monitor the position of the bucket. When lifting material to a high level, the quick coupling plate must be simultaneously tilted to prevent the load from falling from on the loader or the operator. Fitting the loader with the boom self levelling option makes repeated loading work easier.



Avoid sudden loss of stability - Never drag loads from e.g. a shelf. If the load that you want to lift from height is too heavy, the loader can tip forward when reversing with the loader. Never reverse and drag with the loader before making sure that the loader can handle the load that is being lifted.

6.4 Material handling

Use maximum load indicated in the diagram of the operator's manual of the loader as a guideline. Remember that the actual load carrying capacity varies according to operating conditions, especially unevenness of operating area has a great effect. Be especially careful when the load sensor indicator is activated. Also, make sure that the ground surface is firm and follow recommended tire pressures.



WARNING

Risk of tipping over - Avoid overload and keep heavy load close to the loader. Keep loads close to the ground whenever driving, especially during turns and uneven terrain. Pay attention that a heavy load or long distance between the loader and the centre of gravity of the load will affect the balance and handling of the loader. The use of additional counterweights is recommended especially when operating smaller loader models. For 200 series loader the wheel weights are recommended. With heavy loads, the telescopic boom must be kept retracted while moving with the loader. Always wear seat belt.

The information shown in Table 5 can be used to estimate the weight of the load and to avoid too heavy loads. The values shown in table are intended to serve as general guidelines. Actual material densities may vary greatly according to factors such as moisture content and compactness of the material.

Table 5 - Typical material densities

Material	Density of material, (indicative), kg / l (t / m ³)	
Snow	0,2 - 0,8	Example: General bucket A36709 (volume 220 l, empty weight 78 kg) is filled with gravel. The weight of the load, depending on the actual density of the material, is roughly between $1,7 * 220 + 79 = 450$ kg and $1,9 * 220 + 79 = 500$ kg. The load carrying capacity must be estimated by taking in account the compactness of the material and the evenness of the load
Wood chips	0,15 - 0,3	
Wood pellet	~ 0,65	
Peat	0,4 - 0,7	
Soil	1,5 - 1,8	
Gravel	1,7 - 1,9	
Sand	1,5 - 2	
Concrete, dry	1,7 - 2,5	
Crushed rock	1,65 - 2,6	

6.5 Working on uneven ground

Extra caution is needed when using the equipment on inclined terrains and slopes. Drive slowly especially on inclined, uneven, or slippery surfaces, and avoid sudden changes in speed or direction. Operate the controls of the loader with careful and smooth movements. Watch out for ditches, holes on the ground, and other obstacles, as hitting an obstacle may cause the loader to tip over.

Maximum lifting capacity can not be achieved on inclined terrain. On horizontally tilted terrain the load must not be lifted high. The loader frame articulation should be kept straight when lifting heavy loads; turning the load during lifting operation will affect the stability of the loader and may lead to overturning of the machine.

6.5.1 Operating with a tilt adapter

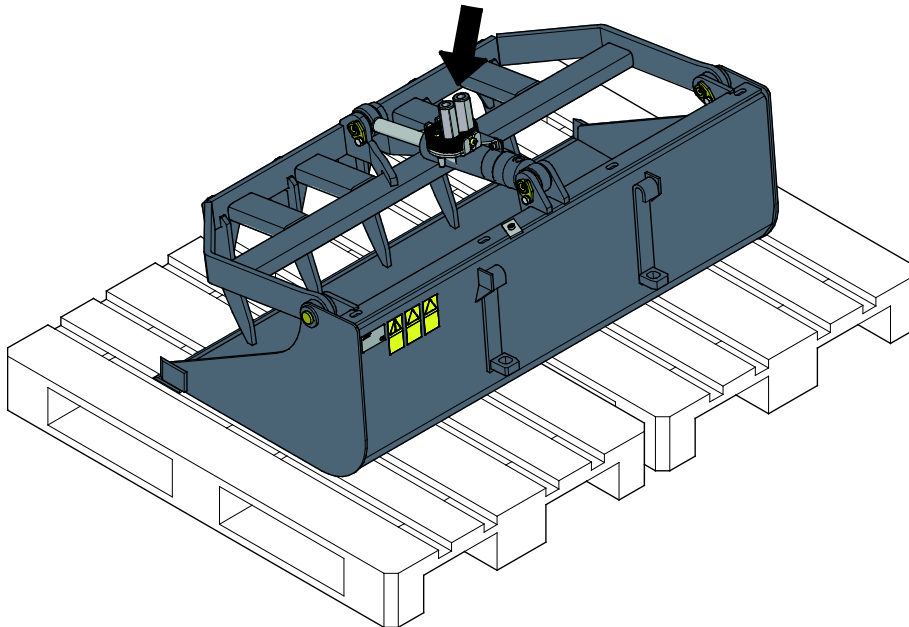
When you work on slightly inclined terrains, a tilt adapter is an useful option. The tilt adapter is fitted in between the attachment and the quick coupling plate of the loader. The adapter allows the attachment to be tilted sideways. The possible tilt adapter options at the time of print of this manual are $\pm 12.5^\circ$ (model A34148), $\pm 45^\circ$ (model A36505) or $\pm 360^\circ$ (model A424406). Read the instructions provided with the tilt adapter and in the operator's manual of the loader. More information about the tilt adapters is available from your AVANT retailer or from the AVANT web pages at www.avantteco.com.

6.6 Storing the attachment

Uncouple and store the attachment on level ground. The best way to store the attachment is a place where it is protected from direct sunlight, rain, and extreme temperatures.

- Avoid leaving the attachment laying directly on the ground. Place it on blocks of wood or on a pallet, for example.
- Place the multiconnector on to its holder as indicated with an arrow in the figure below. Never leave the hydraulic connector on the ground.
- Make sure that the attachment is secured against all movements during storage.
- Never climb on the attachment.

For longer storage periods touch up the paint where needed, grease the lubrication points and oil the visible parts of the hydraulic cylinder shaft to prevent rust damage.



7. Maintenance and Service

The attachment has been designed to be as maintenance free as possible. Continuous maintenance includes regular cleaning and lubrication, and monitoring the condition of the attachment. Because of the crushing hazard caused by lowering machine parts, all maintenance work must be done when moving parts have been lowered down completely and the attachment is lowered flat against the ground.



DANGER

Risk of crushing - Never go under lifted attachment. Make sure the attachment is properly supported during all maintenance work. Never go under a lifted attachment. The loader boom may lower unexpectedly during maintenance causing serious injuries from crushing or impact even when the loader engine is not running. All maintenance and service must be performed when the attachment has been lowered down to a safe position.



WARNING

Risk of crushing - The grapple may lower by itself as a result of a fault or use or service mistake causing serious injuries. All maintenance procedures must be performed when the grapple has been lowered down completely.



7.1 Inspection of hydraulic components

Check the condition of the hydraulic hoses and components when the engine has been turned off, system has cooled down, and the pressure has been relieved. Do not use the equipment, if you have discovered a leak in the hydraulic system of the attachment or the loader. Leaking hydraulic fluid may penetrate skin and cause serious injuries. Seek medical attention immediately in case hydraulic fluid penetrates the skin. Wash any part of body that has been in contact with hydraulic oil carefully with water and soap. Hydraulic fluid is also harmful to the environment and any leak to the environment must be prevented. Repair all leaks immediately after detecting them; a small leak can quickly grow into a big one. Operate the attachment only with type of hydraulic oil that is accepted for use in Avant loaders.



DANGER

Risk of high pressure fluid injection through skin - Release residual pressure before maintenance. Never handle hydraulic components when the hydraulic system is pressurised, since a fitting may break or become loose and the released oil may cause serious injuries. Do not use the equipment, if you have discovered a fault in the hydraulic system.



Check hoses visually for cracks or abrasions. If there are signs of leaks, to check a component, hold up a piece of cardboard in the area where a leak is suspected. Do not use hands to search for leaks. Monitor the wearing of the hoses and stop the use, if the surface layer of any hose has worn off. Check the routing of the hoses; adjust the hose clamps to avoid abrasion to the hoses. The hoses have limited service life. Depending on operating conditions all hoses must be inspected thoroughly no later than after 3 to 5 years of use, and if required, they must be replaced with new ones.

Finding any fault means that the hydraulic hose or component must be replaced and the equipment must not be used until it is repaired. Spare parts are available from your nearest AVANT retailer or authorised service point. Leave the repair work to professional service technicians, if you don't have adequate knowledge and experience about hydraulic assemblies and how to perform the repairing safely.

7.2 Inspection of metal structures

Also the metal structures of the attachment must be inspected regularly. Check visually for damages and inspect the quick attach brackets and their surrounding area carefully. The attachment must not be used if it is deformed, cracked, or torn.

Welding repairs are only allowed to be carried out by professional welders. When welding, only methods and additives suited for steel used in attachment must be used. For more information about repairs contact your nearest service point.

7.3 Cleaning the attachment

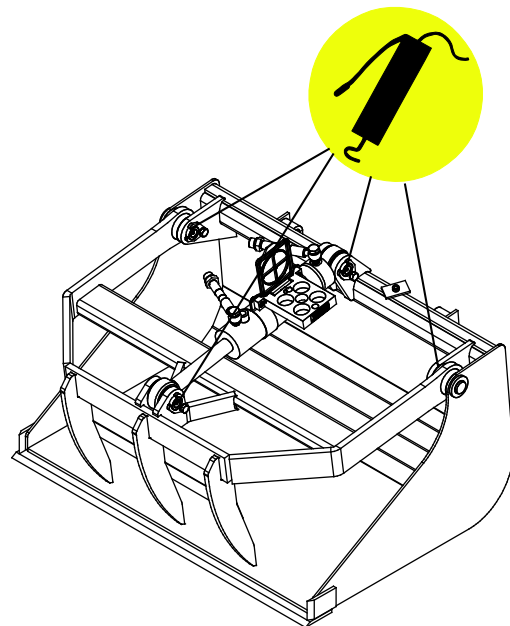
Clean the attachment regularly to prevent accumulation of dirt which is more difficult to remove. A pressure washer and mild detergent can be used for cleaning. Do not use strong solvents, and do not spray directly at the hydraulic components, or at the labels on the attachment.

7.4 Lubrication

There are a total of 4 lubrication points at the joints of the attachment. A small amount of grease should be added regularly.

Correct lubrication interval depends heavily on operating conditions but lubricant must be added at least after every 10 hours of use. Sufficient lubrication of the joints must be ensured, and if the joints have become dirty, lubricant must be added; added lubricant will push out dirt from joints.

Clean the end of the nipple before greasing and add only a small amount of grease at a time. All lubrication nipples are standard R1/8" nipples. Replace any damaged nipples.



8. Warranty terms

Avant Tecno Oy grants a warranty of one year (12 months) from the date of purchase for the attachment it manufactures.

The warranty covers repair costs as follows:

- Work costs are covered, if the repair is not performed at the factory.
- The factory replaces any defective components or consumables.

The factory may reimburse the price of components purchased by the customer in special cases that have been agreed in advance.

The warranty does not cover:

- Normal maintenance work or parts and consumables required for it.
- Damages caused by unusual operating conditions or ways of use, negligence, structural changes made without the consent of Avant Tecno Oy, use of non-original parts or lack of maintenance.
- Consequences of a defect, such as interruption of work or other possible additional damages.
- Travel and/or freight costs caused by the repair.

FI EY-vaatimustenmukaisuusvakuutus Alkuperäinen kieliversio
 SE EG-försäkran om överensstämmelse Originalversion
 EN EC Declaration of Conformity Original language

AVANT[®]
www.avanttecno.com

Valmistaja / Tillverkare / Manufacturer
 Osoite / Adress / Address

AVANT TECNO OY
 Ylötie 1
 33470 YLÖJÄRVI, FINLAND

Vakuutamme täten, että alla mainitut tuotteet täyttävät konedirektiivin turvallisuus- ja terveysvaatimukset (direktiivi 2006/42/EY muutoksineen). Seuraavia yhdenmukaistettuja standardeja on sovellettu /

Vi försäkrar härmed att nedan beskrivna produkter överensstämmer med hälso- och säkerhetskrav i EG-maskindirektiv (EG-direktiv 2006/42/EG som ändrat). Följande harmoniserade standarder har tillämpats /

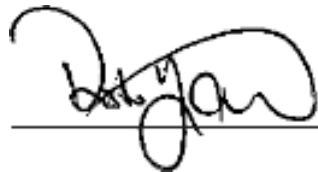
We hereby declare that the products listed below are in conformity with the provisions of the Machinery Directive (directive 2006/42/EC as amended). The following harmonized standards have been applied:

SFS-EN ISO 12100, SFS-EN ISO 4413

Mallit / Modeller / Models

Avant		
Hydraulitoiminen kombikauha; Avant-kuormaajan työlaite	900 mm	A36304
Hydraulisk grepskopa; arbetsredskap för Avant lastare	1050 mm	A36316
Hydraulic grapple bucket; attachment for Avant loaders	1300 mm	A36323

CE



7.9.2020 Ylöjärvi, Finland

Risto Käkelä,
 Toimitusjohtaja / Verkställande direktör /
 Managing Director



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